REMARKS

Reconsideration is requested.

Claims 1, 3, 4, 6, 7, 9, 10, 25, 27, 28 and 30-34 are pending.

The details of claim 32 have been added to claim 25, from which claim 32 depended, and claim 32 canceled, without prejudice, to advance prosecution.

The claims have been revised as suggested by the Examiner, without prejudice, to obviate the claim objections. Withdrawal of the claim objections is requested.

The claims have been revised, as suggested by the Examiner, to obviate the Section 112, second paragraph, rejection of claims 1, 3, 4, 6, 7, 9, 10, 25, 27, 28 and 30-34. Withdrawal of the rejection is requested.

The claims have been amended, without prejudice, in response to the Examiner's comments on pages 4-9 of the Office Action dated May 21, 2009. the claims are supported by an enabling disclosure. One of ordinary skill in the art would be able to make and use the claimed invention without undue experimentation.

The applicants note however, for completeness, that the specification provides that homologues preferably have conserved amino acid substitutions (page 7, lines 31 to page 8, line 1 and common general knowledge), which additionally guides one of ordinary skill in the art as to how to make and use the sequences of the invention without undue experimentation. In addition, the specification also provides a functional assay (page 7, lines 10-13), which combined with an assay known in the art for Arabidopsis MT2a (van Vliet et al., Plant Physiol. 109: 871-878, 1995; copy attached and listed on the attached PTO 1449 Form), provides for one of ordinary skill a

functional characterization of the metallothionein protein. The applicants submit therefore that the whole of the specification and generally advanced level of skill in the art would allow one of ordinary skill in the art to make and use the claimed invention without undue experimentation.

Withdrawal of the Section 112, first paragraph “enablement”, rejection of claims 1, 3, 4, 6, 7, 9, 10, 25, 27, 28 and 30-34 is requested.

The Section 112, first paragraph “written description” rejection of claims 1, 3, 4, 6, 7, 9, 10, 25, 27, 28 and 30-34 is obviated by the above amendments. The claims have been revised, without prejudice, based on the Examiner’s comments on page 10, for example, of the Office Action dated May 21, 2009. Withdrawal of the rejection is requested.

To the extent not obviated by the above amendments, the Section 103 rejection claims 1, 3, 4, 6, 7, 9, 10, 25, 27, 28 and 30-34 over Basel (WO 98/36084) and Zhou (Mol. Gen. Genet. 248:318-328, 1995), is traversed. Reconsideration and withdrawal of the rejection are requested in view of the above and the following comments.

Basel describes several classes of proteins that may allegedly have a beneficial effect on plant growth, for example on page 1 (lines 13-20), it is stated that "enhanced plant growth" can be obtained with "at least one of carbonic anhydrase, calcium binding protein, metal binding protein or biomineralization protein, and any suitable promoter operatlively located upstream of said heterologous gene". There are no statements in Basel that metallothionein is particularly suitable for improving plant growth. On the contrary, the applicants believe that Basel teaches that carbonic anhydrase has the

most pronounced effect, followed by the calcium binding protein and the hydroxyapatite nucleating protein, without mentioning metallothionein (page 9, lines 23-27). Furthermore, the applicants understand Basel to suggest that apart from carbonic anhydrase, the other genes have only a particularly beneficial effect when used in combinations (page 10, lines 27-32). Among the metal binding proteins, no preference is given to metallothionein (page 13, lines 9-14). Neither is any preference given for using a constitutive promoter to drive expression of the gene of interest, instead reference is given to any promoter. There was therefore, based on the teaching of Basel, no motivation for a person of ordinary skill in the art to have chosen metallothionein for improving plant growth, nor to have chosen a constitutive promoter. The applicants submit that Basel states that the carbonic anhydrase II gives the best results, without providing preference for a particular promoter.

The disclosure of Zhou would not have provided any further guidance to cure the deficiencies of Basel.

Zhou teaches that a gene family of metallothioneins exists in Arabidopsis that can be divided in two groups: MT1 and MT2, with at least two members in each group. The fact that the proteins are differentially expressed is not important, given the decision of expressing the metallothioneins under control of a constitutive promoter. Therefore the person skilled of ordinary skill in the art would however not have known which gene to choose as Zhou nowhere teaches any beneficial effects on seed yield that would result from overexpressing a metallothioneins.

Even for choosing between MT2a or MT2b, there is no suggestion in Zhou as MT2b is suggested to be an active protein (page 323, left column, second paragraph, line 6); both genes have a similar expression pattern: constitutively in roots, leaves and inflorescences, with a lower expression level in young roots and in siliques and a somewhat different expression level in seedlings (page 323, right column, lines 11-21 of the last paragraph). Given the similarity in expression pattern between MT2a and MT2b (see also figure 6), the ordinarily skilled person would not have been motivated to have chosen MT2a (SEQ ID NO: 2) rather than MT2b.

For the reasons of record as well as additionally explained above, the claims are submitted to be patentable over the cited combination of art. Withdrawal of the Section 103 rejection is requested.

The claims are submitted to be in condition for allowance and a Notice to that effect is requested. The Examiner is requested to contact the undersigned, preferably by telephone, in the event anything further is required.

Respectfully submitted,

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